**Claims**

1. A dissymmetric particle of nanometric or mesoscopic size, that has an inorganic part consisting of a material A and an organic part consisting of a material B, characterized in that:
   - the inorganic material A is a mineral oxide or a metal;
   - the organic material B is a polymer consisting of recurrent units derived from a vinyl compound;
   - the organic part is substantially spherical in shape;
   - the two parts are bound by physicochemical or covalent interactions;
   - the size of each of the parts is between 5 nm and 1 μm, preferably between 50 nm and 250 nm.

2. The particle as claimed in claim 1, characterized in that its size is between 1 nm and 100 nm or between 100 nm and 1 μm.

3. The particle as claimed in claim 1, characterized in that the inorganic material A is an oxide chosen from silica, iron oxides, aluminosilicates, titanium dioxide and alumina.

4. The particle as claimed in claim 3, characterized in that the inorganic material A is a metal chosen from metals that are stable in an aqueous medium.

5. The particle as claimed in claim 1, characterized in that the inorganic material bears an organic group.

6. The particle as claimed in claim 5, characterized in that the organic group is chosen from alkyl groups, and amine, thiol or nitrile functions.

7. The particle as claimed in claim 1, characterized in that the polymer comprises recurrent units -CR=CR'-, which may be identical or different, in which:

- R represents H or an alkyl group;
- R' represents H, an alkyl group, an aryl group, an alkylaryl group, an alkenylaryl group, a pyridyl group, a nitrile group, a group -COOR" or a group -OC(O)R" in which R" is H, an alkyl or an alkenyl.

8. The particle as claimed in claim 7, characterized in that the alkyl group or the aryl group bears a functional group.

9. The particle as claimed in claim 7, characterized in that the polymer is crosslinked or noncrosslinked.

10. The particle as claimed in claim 1, characterized in that the inorganic part has the shape of a sphere.

11. The particle as claimed in claim 10, characterized in that it has the shape of a dumbbell, the organic and inorganic parts having substantially the same size.

12. The particle as claimed in claim 10, characterized in that it has the shape of a snowman, the inorganic part having a size that is clearly different from the organic part.

13. The particle as claimed in claim 1, characterized in that the inorganic part has the shape of an ellipse, of a disk, of a block or of a rod.

14. The particle as claimed in claim 1, characterized in that the inorganic material is silica and the

organic material B is a polystyrene or a copolymer of styrene and of divinylbenzene.

15. A method for preparing dissymmetric particles as claimed in claim 1, characterized in that it comprises the following steps:

a) during a first step, the surface of particles having a size of between 5 nm and 1 μm and consisting of the inorganic material A is modified with a coupling agent C comprising a function $F_C$ which exhibits affinity for one or more precursors of the polymer B;

b) during a second step, the modified inorganic particles obtained at the end of step a) are brought into contact with the precursor(s) of the polymer B, in the presence of a free-radical initiator and of a surfactant in solution in a solvent, in proportions that allow the formation of one nodule of polymer per inorganic particle.

16. The method as claimed in claim 15, characterized in that the particles are extracted from the reaction medium by evaporation of the solvent or by lyophilization.

17. The method as claimed in claim 15, characterized in that the initial inorganic particles are used, for step a), in the form of a colloidal suspension for which the solids content is between 2 and 35%, and for which the pH is adjusted so as to allow the interaction with the coupling agent C.

18. The method as claimed in claim 15, characterized in that the inorganic particles are silica particles having a diameter of approximately 100 nm.

19. The method as claimed in claim 15, characterized

in that the function $F_c$ is a vinyl group, or a vinyl, allyl, styryl, methacryloyl or acryloyl group.

20. The method as claimed in claim 15, characterized in that step a) is carried out by bringing the inorganic particles into contact with a macromonomer consisting of a macromolecule having a hydrophilic chain that ends with a polymerizable function $F_c$, and the reaction medium is stirred.

21. The method as claimed in claim 20, characterized in that the macromonomer is chosen from poly(ethylene oxide)s, hydroxycelluloses, poly(vinylpyrrolidone)s, poly(acrylic acid)s and poly(polyvinyl alcohol)s, said compounds bearing the function $F_c$.

22. The method as claimed in claim 15, characterized in that step a) is carried out by covalent grafting of a coupling agent bearing a function $F_c$ that is copolymerizable with the precursor(s) of the polymer B.

23. The method as claimed in claim 22, characterized in that the inorganic part A is a mineral oxide and the coupling agent is chosen from organosilanes corresponding to the formula $R^1_nSiX_{4-n}$ (n = 1 to 3), in which X is a hydrolyzable group and $R^1$ is a radical comprising the functional group $F_c$.

24. The method as claimed in claim 23, characterized in that the coupling agent is a methacryloylalkyltrialkoxysilane.

25. The method as claimed in claim 22, characterized in that the inorganic particle A is a metal, and the coupling agent is chosen from organothiols $R^1SH$ and amines $R^1NH_2$ in which $R^1$ is a substituent

bearing the functional group $F_C$.

26. The method as claimed in claim 25, characterized in that the coupling agent is 4-vinylaniline.

27. The method as claimed in claim 15, characterized in that step a) is carried out by suspending the inorganic particles at a pH close to neutrality, and adding an amphiphilic compound consisting of a hydrophobic part that has a polymerizable group and of a polar head that bears a charge opposite to that of the surface of the particles.

28. The method as claimed in claim 27, characterized in that the amphiphilic molecules are chosen from compounds derived from styrene sulfonates and quaternary alkylammoniums, the two types of compounds bearing a hydrophobic group.

29. The method as claimed in claim 15, characterized in that step b) is carried out by bringing the modified particles of inorganic material A obtained at the end of step a) into contact with a monomer which is a precursor of the polymer B, in the presence of a polymerization initiator, said monomer bearing functions $F_B$ capable of reacting with the functions $F_C$.

30. The method as claimed in claim 15, characterized in that step b) is carried out by bringing the particles of material A obtained at the end of step a) into contact with an oligomer of the polymer B, in the presence of a polymerization initiator.

31. The method as claimed in claim 15, characterized in that the dissymmetric particles obtained at the end of step b) are subjected to a further treatment aimed at modifying the surface groups of

the material A that were not modified during step b).

32. The method as claimed in claim 29, characterized in that the monomer precursor is chosen from compounds having a vinyl group that plays the role of polymerizable function $F_B$.

33. The method as claimed in claim 32, characterized in that the monomer corresponds to formula HRC=CHR' in which:

- R represents H or an alkyl group;
- R' represents H, an alkyl group, an aryl group, an alkylaryl group, an alkenylaryl group, a pyridyl group, a nitrile group, a group -COOR" or a group -OC(O)R" in which R" is H, an alkyl or an alkenyl.

34. The method as claimed in claim 33, characterized in that the monomer is chosen from styrene, α-methylstyrene, vinylpyridine, vinyl acetate, vinyl propionate, methyl methacrylate, ethyl acrylate, butyl acrylate, ethylhexyl methacrylate, acrylonitrile and methacrylonitrile.

35. The method as claimed in claim 29, characterized in that a mixture comprising one or more monomers having a group $F_B$, and a monomer comprising a second group $F_B$, is used.

36. The method as claimed in claim 30, characterized in that the oligomer is chosen from the polymers or copolymers obtained from monomers having a vinyl group that plays the role of polymerizable function $F_B$ and optionally bearing a function that is crosslinking in nature.

37. The method as claimed in claim 15, characterized in that the solvent is chosen from water and

water-alcohol mixtures in water/alcohol proportions of between 100/0 and 50/50.

38. The method as claimed in claim 15, characterized in that the surfactant is chosen from anionic, cationic or nonionic surfactants.